

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-8 are presently active in this case, Claims 1 and 7 having been amended and Claim 9 having been canceled by way of the present Amendment.

In the outstanding Official Action, Claims 1-8 were rejected under 35 U.S.C. 102(b) as being anticipated by Rehfeld (U.S. Patent No. 5,773,102). For the reasons discussed below, the Applicants traverse this anticipatory rejection.

Claim 1 of the present application recites a laminated glazing material with properties of acoustic insulation and mechanical strength. The glazing material comprises two glass sheets and a single-ply intermediate layer abutting the two glass sheets.

The '102 patent describes a soundproofing laminated glass pane which includes at least two transparent rigid sheets, as well as at least one high-performance acoustic film combined with at least one film having ordinary acoustic performance. (See column 2, lines 38-45.) Accordingly, the '102 patent describes a laminated glass pane having not only at least two transparent sheets, but also at least two films therebetween. (See Figures 1 and 2.) Therefore, the '102 patent does not disclose a glazing material that comprises two glass sheets and a single-ply intermediate layer abutting the two glass sheets, as recited in Claim 1 of the present application.

Claim 7 of the present application recites a polymer film having a thickness for use as only one intermediate layer of a laminated glazing material, wherein the thickness is equal to at least $d_{ref} J_{ref}/J_c$. Accordingly, for the reasons discussed above with respect to Claim 1, the Applicants submit that the '102 patent does not disclose all of the limitations recited in Claim 7 of the present application.

Claim 4 of the present application recites a laminated glazing material with properties of acoustic insulation and mechanical strength. The laminated glazing material comprises two glass sheets and a single-ply intermediate layer, wherein the intermediate layer is made of a composite material comprising a polymer and reinforcing fibers embedded in the polymer.

The '102 patent describes a film of acoustic resin (3), a film made of polyurethane or polyvinyl butyral (4), and a thin film (10) made of a material intended to ensure chemical separation of the other two films. However, the '102 patent does not disclose an intermediate layer made of a composite material comprising a polymer and reinforcing fibers embedded in the polymer, as recited in Claim 4 of the present application.⁷

Claim 8 of the present application recites a polymer film for use as an intermediate layer of a laminated glazing material, wherein the polymer film is a composite comprising a polymer and reinforcing fibers embedded in the polymer. Accordingly, for the reasons discussed above with respect to Claim 4, the Applicants submit that the '102 patent does not disclose all of the limitations recited in Claim 8 of the present application.

Furthermore, the '102 patent does not disclose reinforcing fibers embedded in a polyer, as expressly recited in Claims 4 and 8 of the present application. In fact, the '102 patent makes no mention of reinforcing fibers. Accordingly, the Applicants submit that the '102 patent does not disclose all of the limitations recited in Claims 4 and 8 of the present application.

Claims 1, 3, and 6-7 were rejected under 35 U.S.C. 102(b) as being anticipated by Rehfeld et al. (U.S. Patent No. 5,368,917). For the reasons discussed below, the Applicants traverse this anticipatory rejection.

Claim 1 of the present application recites a laminated glazing material with properties of acoustic insulation and mechanical strength. The glazing material comprises two glass sheets and a single-ply intermediate layer abutting the two glass sheets. The intermediate layer is in the form of a polymeric film and has a thickness, wherein the thickness of the intermediate layer is equal to at least $d_{ref} J_{ref}/J_c$, where J_c is a critical energy value specific to a material of the intermediate layer and representative of an energy necessary for propagation of a crack initiated in the intermediate layer; J_{ref} is a reference critical energy value which corresponds to a critical energy value of a polyvinyl butyral (PVB) film and is equal to 35,100 J/m² for a temperature of 20°C and for a drawing rate of 100 mm/min applied to the PVB film; and d_{ref} is a reference thickness which corresponds to that of the PVB film and is equal to 0.38 mm.

Claim 7 of the present application recites a polymer film having a thickness for use as only one intermediate layer of a laminated glazing material, wherein the thickness is equal to at least $d_{ref} J_{ref}/J_c$, where J_c is a critical energy value specific to a material of the intermediate layer and representative of an energy necessary for propagation of a crack initiated in the intermediate layer; J_{ref} is a reference critical energy value which corresponds to the critical energy value of a polyvinyl butyral (PVB) film and is equal to 35,100 J/m² for a temperature of 20°C and for a drawing rate of 100 mm/min applied to the PVB film; and d_{ref} is a reference thickness which corresponds to that of the PVB film and is equal to 0.38 mm.

Claims 1 and 7 both define the thickness of the intermediate layer in terms of the tearing strength of the intermediate layer, specifically, wherein the thickness is equal to at least $d_{ref} J_{ref}/J_c$. (See paragraphs 22 and 23 on page 5 of the present application.) The Applicants submit that the '917 patent does not disclose this feature, and therefore does not anticipate Claims 1 and 7 of the present application.

The '917 patent describes an acoustic glazing that is effective in eliminating aerodynamic noises in moving vehicles. (See, e.g., the Abstract, and column 1, lines 49-55.) The '917 patent describes choosing the thickness of at least one glass sheet and the composition and dimensions of an interlayer region such that the glazing has specific frequency attenuation characteristics and acoustic transmission loss characteristics. (See the claims of the '917 patent.) The '917 patent does not disclose, or even suggest, defining the thickness of an intermediate layer, wherein the thickness is equal to at least $d_{ref} J_{ref}/J_c$, as recited in Claims 1 and 7 of the present application for obtaining the optimum mechanical strength.

Claims 1, 3, and 6-7 were rejected under 35 U.S.C. 102(b) as being anticipated by Rehfeld et al. (U.S. Patent No. 5,478,615). For the reasons discussed below, the Applicants traverse this anticipatory rejection.

As noted above, Claims 1 and 7 both define the thickness of the intermediate layer in terms of the tearing strength of the intermediate layer, specifically, wherein the thickness is equal to at least $d_{ref} J_{ref}/J_c$. The Applicants submit that the '615 patent does not disclose this feature, and therefore does not anticipate Claims 1 and 7 of the present application.

The '615 patent describes an acoustic glazing that is effective in eliminating aerodynamic noises in moving vehicles. (See, e.g., the Abstract, and column 1, lines 49-55.) The '615 patent describes choosing at least one of the thickness of at least one glass sheet and the composition and dimensions of an interlayer region such that the glazing has specific frequency attenuation characteristics and acoustic transmission loss characteristics. (See the claims of the '615 patent.) The '615 patent does not disclose, or even suggest, defining the thickness of an intermediate layer, wherein the thickness is equal to at least $d_{ref} J_{ref}/J_c$, as recited in Claims 1 and 7 of the present application.

Claims 2 and 3 are considered allowable for the reasons advanced for Claim 1 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 1.

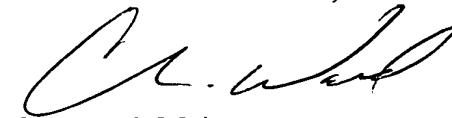
Claims 5 and 6 are considered allowable for the reasons advanced for Claim 4 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 4.

Accordingly, the Applicants respectfully request the withdrawal of the anticipation rejections.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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IN THE CLAIMS

1. (Once Amended) A laminated glazing material with properties of acoustic insulation and mechanical strength, said glazing material comprising two glass sheets and a single-ply intermediate layer abutting the two glass sheets, the intermediate layer being in the form of a polymeric film and having a thickness, wherein the thickness of the intermediate layer is equal to at least $d_{ref} J_{ref}/J_c$, where:

J_c is a critical energy value specific to a material of the intermediate layer and representative of an energy necessary for propagation of a crack initiated in the intermediate layer;

J_{ref} is a reference critical energy value which corresponds to a critical energy value of a polyvinyl butyral (PVB) film and is equal to 35,100 J/m² for a temperature of 20°C and for a drawing rate of 100 mm/min applied to the PVB film; and

d_{ref} is a reference thickness which corresponds to that of the PVB film and is equal to 0.38 mm.

7. (Once Amended) A polymer film having a thickness for use as [an] only one intermediate layer of a laminated glazing material, wherein the thickness is equal to at least $d_{ref} J_{ref}/J_c$, where:

J_c is a critical energy value specific to a material of the intermediate layer and representative of an energy necessary for propagation of a crack initiated in the intermediate layer;

J_{ref} is a reference critical energy value which corresponds to the critical energy value of a polyvinyl butyral (PVB) film and is equal to 35,100 J/m² for a temperature of 20°C and for a drawing rate of 100 mm/min applied to the PVB film; and

d_{ref} is a reference thickness which corresponds to that of the PVB film and is equal to 0.38 mm.

9. (Cancel)